

Signal Timing and Coordination

Actuated Traffic Signals

Traffic signals assign the right-of-way to various conflicting traffic movements at an intersection.

In Fremont, all traffic signals are actuated. Actuated traffic signals use detectors located in the pavement on the approaches to a traffic signal to monitor and assign the time intervals for right-of-way based on traffic demand.



The signal must serve the needs of pedestrians, bicyclists, automobiles, buses, and large trucks. By figuring out the heaviest usage of each intersection, we are able to figure out the best possible timing scenario at each intersection.

What is Signal Coordination?

Signal coordination provides a means by which the sequence (begin and end) of green lights is established along a series of traffic signals to allow for the uninterrupted flow of traffic between these traffic signals. Signal coordination is most typically used along heavily traveled arterial streets with a frequent presence of traffic signals.

The goal of signal coordination is to get the greatest number of vehicles through a corridor with the fewest stops in the safest and most efficient manner. It would be ideal if every vehicle entering a corridor could proceed without stopping. This is not possible, even in the most well designed system. Therefore, with signal coordination, the heaviest traffic movements are given precedence over the smaller traffic movements.

Benefits of Signal Coordination

The benefits of coordination are as follows:

- Reduces overall stops and travel delays.
- Allows for large groups of vehicles to efficiently flow through a series of traffic signals without stopping.
- Reduction in the number of stops reduces vehicle emissions and thus improves air quality. Most of the vehicle emissions occur during acceleration and deceleration (brake dust).
- Reduces fuel consumption.

Disadvantages of Signal Coordination

The main disadvantage of signal coordination is that side street traffic typically experiences a longer wait time.

In the development of signal coordination, we have to manage the competing interests of providing continuous flow of traffic on the arterials, providing adequate time for pedestrians to cross the street, and minimizing the wait time for side street traffic.

Limitations of Signal Coordination

As we strive to improve signal progression and coordination within the City, it is important that the public understand the limitations of signal coordination. While traffic signal coordination can reduce stops and travel delays along a particular corridor, travel along a particular street may not completely experience non-stop free-flow conditions due to the following conditions:

- Capacity issues as a result of increased traffic caused by growth.
- Complexity of the street system.
- Equipment malfunction.
- Street construction.
- Traffic incident.

Coordinated Street Segments in Fremont

AM and PM Peak Commute Periods (generally between 6 a.m. to 9 a.m. and 3:30 p.m. to 6:30 p.m.)

- Alvarado Boulevard (Falcon Drive to Lowry Road)
- Auto Mall Parkway (Christy Street to Boyce Road-Cushing Parkway)
- Auto Mall Parkway (South Grimmer Boulevard to Osgood Road)
- Blacow Road (Mowry Avenue to Fremont Boulevard)
- Central Avenue (Dusterberry Way to Farwell Drive)
- Decoto Road (Cabrillo Drive to Paseo Padre Parkway)
- Fremont Boulevard (Enea Court to Industrial Drive)
- Grimmer Boulevard (Bay Street to Auto Mall Parkway)
- Mission Boulevard (Washington Boulevard to Paseo Padre Parkway)
- Mowry Avenue (Farwell Drive to Hastings Street)
- Paseo Padre Parkway (Thornton Boulevard to Mission View Drive)
- Paseo Padre Parkway (Gomes Road to Chadbourne Drive)
- Paseo Padre Parkway (Fremont Boulevard to Decoto Road)
- Stevenson Boulevard (Omar-Farwell Drive to Liberty Street)
- Walnut Avenue (Gallaudet Drive to Civic Center Drive)
- Warm Springs Boulevard (Warren Avenue to Scott Creek Road)
- Washington Boulevard (Fremont Boulevard to Osgood Road)

Mid-Day Peak Commute Period (generally 11:30 a.m. to 1:30 p.m.)

- Alvarado Boulevard (Falcon Drive to Lowry Road)
- Auto Mall Parkway (Christy Street to Boyce Road-Cushing Parkway)
- Auto Mall Parkway (South Grimmer Boulevard to Osgood Road)
- Decoto Road (Cabrillo Drive to Paseo Padre Parkway)
- Fremont Boulevard (Enea Court to Industrial Parkway)
- Grimmer Boulevard (Bay Street to Auto Mall Parkway)
- Mowry Avenue (Farwell Drive to Hastings Street)
- Paseo Padre Parkway (Thornton Boulevard to Mission View Drive)
- Stevenson Boulevard (Omar-Farwell Drive to Fremont Boulevard)
- Warm Springs Boulevard (Warren Avenue to Scott Creek Road)
- Washington Boulevard (Fremont Boulevard to Osgood Road)

If you have any questions regarding the information above, please contact the Transportation Engineering Division by completing an [online form](#) or by calling 510-494-4745.